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STERILIZING TECHNIQUE

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For the Operator's Assistants

In successful surgery there is no such thing as an unimportant detail. Our modern surgical feats are possible only because of a wonderful painstaking in matters seemingly small in themselves.

At an operation so many things claim attention that the physician requires a method of sterilizing that will yield absolute results at a minimum cost of time and energy. This is secured, not by curtailing processes, but by so arranging them that every detail will be taken care of most advantageously.

In sterilization there is no half way post. An article is sterilized or it is not sterilized. In leaping a chasm no jump counts that does not take you clear across.

The outline that follows is offered with the thought that it may be useful to the physician to place in the hands of the nurses who assist him in operative and obstetrical work.

There are three general sources of possible infection; from the operator and nurses, from the various articles used by the operator, and from the patient's own body. The slightest lack of care in any one of these points may easily vitiate the utmost painstaking in the others.

A thorough preliminary cleansing of the hands should precede everything else. Then in order come the sterilizing of gowns, gauze for dressings, cotton, bandages, etc., water, instruments, the disinfection of the hands, and the preparation of the patient.

DIRECTIONS

Sterilizing Dressings, etc., in a Castle Non-Pressure Dressing Sterilizer

1. Make the dressings and bandages into loose packages, wrapping each package in a piece of gauze. Place them in the sterilizing chamber, making sure the valve is so turned that no steam can enter.
2. Heat the packages in dry air to prevent condensation on the admission of steam. The length of this process varies with the amount of dressings in the sterilizer. When there is sufficient time the dressings may be heated for thirty minutes before the steam is admitted.
3. Turn the valve to admit steam. In what is recognized as the best sterilizer construction the steam enters at the top at one end of the sterilizing chamber and passes out at the bottom at the other end. In this way all of the dressings are thoroughly penetrated. It is recommended that the steaming process occupy from twenty-five to thirty minutes.
4. Shut off the steam, and dry the dressings by subjecting them to hot air for from twenty to thirty minutes.
5. The packages can now be removed from the sterilizer, but unless it is necessary to use the sterilizer for others, they had better be left in it until the operator is ready for them, when the nurse can take a package, and opening the towel without touching the dressings, let the operator pick out the latter for himself.

Sterilizing Dressings, etc., in a Castle Pressure Dressing Sterilizer

1. Make the dressings, bandages, gowns, etc., into small packages, wrap each package in a piece of gauze, and place in the sterilizer.

2. Close the door; throw the arms into place by pushing the locking lever to the right as far as it will go; then turn the handles to the right until the door is perfectly tight.

3. When the steam has reached a pressure of twenty pounds turn the control valve so as to produce a vacuum in the sterilizing chamber. Leave it in this position for five minutes. This draws the air from the sterilizing chamber, insuring rapid and thorough penetration of all parts of the dressings by the steam when it is admitted.

4. Turn the control valve so that steam will enter the sterilizing chamber. Leave it in this position for thirty minutes. The drip valve should be opened at intervals to allow any condensed moisture to escape.

5. Turn the control valve so that the steam will be shut out of the sterilizing chamber and the steam remaining in the chamber allowed to escape. This will relieve the steam pressure in about a minute.

6. Turn the control valve so as to produce a vacuum again to dry the dressings. Leave it in this position for ten to fifteen minutes.

7. Turn the control valve so that the steam will be shut off, and open the filter valve on the top of the sterilizer.

8. Release the pressure on the door by turning the handles to the left, and unlock it by moving the locking lever to the left. The dressings are now thoroughly dry and ready to use.

Sterilization of Water

Under ordinary conditions the boiling of unpolluted water for twenty minutes will render it perfectly sterile.

If cool sterile water is desired and the operator is not using a water sterilizer with a cooling coil, it will be necessary to sterilize the water some hours in advance of the operation. Otherwise water may be sterilized at the same time as the dressings.

If the physician is operating at the home of the patient with a combination sterilizer, and wishes to use the base for the sterilization of instruments, he may sterilize water in a separate covered receptacle.

Whatever the method employed, the water should not be drawn or poured from the dish in which it is sterilized until it is needed for use. If the sterilizer is an improvised one it should be kept carefully covered.

Sterilization of Instruments

After the dressings have been, or while they are being sterilized, the instruments may also be sterilized. This process is so short that it is not necessary to begin it earlier.

1. Use a 2% solution of sodium carbonate. This not only prevents the instruments from rusting, but it increases the rapidity of sterilization, as bacteria are more susceptible to a hot alkaline solution than to pure water.

2. Wrap the cutting edges of knives and scissors in gauze. Stick needles on a piece of gauze.

3. Wait until the solution is boiling, and then place the instruments in it so that they are entirely covered. Instruments with cutting edges are generally boiled for five minutes. Other instruments may be left in the sterilizer for a longer time.

4. With sterile rubber gloves remove the instruments from the solution, rinse in 95 % alcohol, dry with pieces of sterile gauze, and arrange them on the instrument table so that the operator in picking up one instrument will not touch any others. Until the operator is ready for the instruments they may be covered with sterilized gauze.

As it is almost impossible to free the patient's skin from all germs many operators do not again use the knife with which the incision in the skin has been made, but have a second knife ready.

Disinfection of Hands

The nurse should always wear sterile rubber gloves, and their use by the operator is recognized as safest for most major operations. The sleeves of the gown and the tops of the gloves should overlap so as to leave no flesh exposed.

Whether or not gloves are used the hands and arms should be disinfected with the same thoroughness.

1. Trim the nails with nail scissors so that the free ends are not over a millimeter in length. Clean and scrape with an orange stick, frequently dipping the point into hydrogen peroxid.

2. Scrub the hands and arms to the elbows for ten minutes in hot sterile water with a sterilized brush and green soap. A deep basin should be used so that the hands may be kept under the water while being scrubbed. Change the water every two minutes, being careful not to touch faucets with the hands. If there is no treadle connection to the faucets have an assistant turn them. Rinse hands and arms in clear sterile water.

3. Scrape the nails again with a sterile orange stick, washing the hands afterward.

4. Take an ounce of moistened chlorid of lime in the hands and adding to it an ounce of sodium carbonate, make into a paste and rub thoroughly on the hands and arms.

5. Carefully rinse off the hands and arms in sterile water. The rubber gloves may be drawn on while the hands are wet, or the hands may first be dried and dusted with boracic acid.

A frequent rinsing of the gloved hands during the course of the operation will insure against any danger from perspiration oozing through possible pin pricks in the gloves.

If any particular antiseptic tends to roughen the skin, it is wiser to use some other, or even to rely on soap and water alone and keep the hands smooth, as rough hands can not be made safe

by any process. The systematic use of a good skin lotion every night will go far towards keeping the hands and arms smooth.

At the operation no one should be allowed to pass her hands or arms above the wound to reach anything. The nurse who is to wipe the operator's brow should stand where she will not have to reach across the operating field.

No nurse should ever neglect to wear a gauze covering for her hair.

Disinfection of Operating Field

A much larger area always should be prepared than the part that is to be immediately involved in the operation. When it is possible it is well to soap and shave the entire area on the day preceding the operation. Then cover the field with a green soap poultice. Remove the poultice three hours before the operation, and wash off the skin thoroughly with clear sterile water. Put on a mercury bichlorid compress and leave it until the patient is in the operating room.

1. Soap and shave the entire area (if it has not been done on the preceding day).
2. Using warm sterile water and tincture of green soap thoroughly scrub the surface with a piece of aseptic gauze.
3. Wash the surface with clear sterile water, rubbing with a piece of aseptic gauze.

4. Some authorities recommend painting the entire area with tincture of iodine. If iodine is used care must be taken to thoroughly dry the surface before applying it.

5. Wash with ether, rubbing with aseptic gauze, and then wash with 95% alcohol.

When the umbilicus is in the operating field particular care should be exercised in disinfecting it. An extra amount of iodine may be dropped upon it and the excess taken up by a piece of gauze. Moles should be given especial attention, even if somewhat outside the area of the operating field.

In emergency cases where there is but little time to prepare the patient, the operating field may be soaped, shaved and washed, and then treated with chlorid of lime and sodium carbonate, as in the disinfection of the hands. This is followed with the iodine, ether and alcohol.

WILMOT CASTLE COMPANY

Rochester, N. Y.

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